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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Antonino Toro

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04/22/2009

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EXAMINER

CREPEAU, JONATHAN

ART UNIT

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1795

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/534,918	Applicant(s) TORO ET AL.	
	Examiner Jonathan Crepeau	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-14 and newly added claim 16. Claims 1-14 remain rejected, and claim 16 is newly rejected, under 35 USC 102 and 103 for substantially the reasons of record. Claims 1-14 and 16 are additionally rejected under 35 USC 112, first paragraph as necessitated by amendment. Accordingly, this action is made final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-14 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 has been amended to recite that the pressure drop in the extraction device is “about four to about a hundred times” higher than the pressure drop in the feed device, and claim 16 recites that this range is “about ten to about a hundred times.” Applicant cites [0030] and [0032] of the instant specification as providing support, but it is not believed that these passages provide adequate support for the claim language. The passages, although they

disclose “a few millibars,” and “tens of millibars, preferably one to two hundred millibars,” do not adequately convey to a person of skill in the art that Applicants contemplated or envisioned the now-claimed ranges to be part of the invention. Accordingly, the amendatory language is considered to introduce new matter into the application.

Claim Rejections - 35 USC § 102

4. Claims 1-6, 10, 13, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Rothmayer et al (U.S. Patent 4,233,146). The reference is directed to an electrochemical cell such as a fuel cell (i.e., electrochemical generator) or electrodialyzer (see col. 1, line 6). In Figs. 2a-2h, an exemplary embodiment of an electrodialyzer is shown. Referring to Fig. 2a, a gasket (20) contains a fluid inlet (24) and a fluid outlet (26) and a porous collector/distributor (22) in correspondence of the active area. Fluid flows through an inlet distribution structure (16) and an outlet distribution structure (18). As shown in the drawing, the inlet structure contains islands (16) that are spaced close together and the outlet structure contains islands that are spaced further apart. Thus, the inlet structure is capable of generating a larger localized pressure drop than the outlet structure, because the channels of the inlet structure are narrower and fluid velocity would be increased. It is noted that instant claim 1 recites that localized pressure drops in an "extraction device" are higher than a "feed device." However it is submitted that the structure of Rothmayer et al. is sufficient to anticipate claim 1 because all of the structural elements of the claim are present, and the inlet distribution structure of the reference is capable of functioning as the claimed “extraction device” (as well as the outlet distribution structure being capable of

functioning as the claimed “feed device”) if the fluid is flowed through the cell in the direction opposite from that described in the reference. Stated another way, the structure of the reference is capable of generating the claimed pressures/pressure drops as recited in claims 1, 3-5, and 16. As such, it meets the claims (MPEP 2114).

Regarding claim 2, the “feed device” comprises manifolds (26), and distributing channels (18), and the “extraction device” comprises manifolds (24) and collecting channels (16). Regarding claim 10, the collecting channels (islands 16) can be made of a plastic such as polyethylene, which is hydrophobic (see col. 3, line 40).

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

5. Claims 7, 8, 9, 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rothmayer et al.

The reference is applied to claims 1-6, 10, 13, and 16 for the reasons stated above. However, the reference does not expressly teach that the collecting channel has a longer length than the distributing channel, as recited in claim 7, or that the number of collecting channels is lower than the amount of distributing channels as recited in claim 8.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be sufficiently motivated to adjust these parameters to affect the flow characteristics in the cell of Rothmayer et al. The reference provides a detailed discussion at column 3, line 63 et seq. of the factors involved in

selecting the design of the feed device and extraction device. It would be obvious to configure the extraction device so that the collecting channels were longer or more tortuous, or that there were fewer of them relative to the distributing channels of the feed device.

The reference further does not expressly teach that the sealing gaskets are provided with centering holes symmetrical with respect the vertical axis and asymmetrical with respect to the horizontal axis, as recited in claim 9. However, insofar as the holes “68”, “70” shown in Figure 2c are not already “centering holes,” it would be obvious to provide such holes for the purposes of securing the stack elements together with a bolt or tie rod. Furthermore, if the orientation of the cell in Fig. 2c is changed by ninety degrees, the above-mentioned holes 68, 70 would be symmetrical about a vertical axis but asymmetrical about a horizontal axis.

The reference further does not expressly teach that the plastic of the collecting channel is a fluoropolymer such as PTFE, as recited in claims 11 and 12. However, the use of such a material would have been obvious because the plastic disclosed by the reference is not particularly limited and PTFE is a suitable inert material, which is a criterion identified by the reference in column 3, line 38. As such, the use of a PTFE would be rendered obvious. Further, the limitation that the polymer is made by applying a coating is treated as a product-by-process limitation and is given little weight (MPEP 2113).

Finally, as recited in claim 14, the reference does not appear to teach that the distributing and collecting channels are obtained in the interior of bipolar plates delimiting the elementary cells. However, the use of the distributing and collecting channels in a fuel cell would render this configuration obvious. It is well-known that in fuel cell stacks such as PEM fuel cells, the reactants are supplied to the electrodes via bipolar plates having flow channels thereon. It would

therefore be obvious to incorporate the distributing and collecting channels of Rothmayer et al. into a bipolar plate in a fuel cell stack since in this location the distributing and collecting channels would appropriately guide the reactants from the manifolds to the plate flow channels.

Response to Arguments

6. Applicant's arguments filed March 9, 2009 have been fully considered but they are not persuasive. Applicants assert that the spacer "22" of Rothmayer et al. is disclosed as "nonreactive," and thus is not a conductive "current collector/distributor" as recited in the instant claims. However, in response, it is believed that the term "current collector" is not positively recited in the claims. The claim language "current collector/distributor" is interpreted as "current collector or distributor," and the screen 22 is a "distributor" as claimed. Furthermore, it is submitted that the disclosure of "nonreactive" in the reference is not the same as "electrically nonconductive," and the reference does not expressly teach away from using electrically conductive materials as the distributor screen.

Applicants further state that Rothmayer fails to disclose the pressure drops recited in claim 1. However, to meet the claim language, the reference must be merely capable of generating these pressure drops, and Applicants have not shown that the reference does not have this capability. As such, the reference is still believed to be sufficient to meet the claims. Accordingly, the rejections as stated above are believed to be proper.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
April 21, 2009